



Job Loss Analysis

ID No: 1190741 **Status:** Closed

Original Date: 15/Sep/2008
Last Review Date: 06/Nov/2008

Organization:

SBU: GLOBAL MANUFACTURING
BU: ALL
Work Type: Safe Work Practices
Title (Work Activity): Hot Work
Site/Region:

Personal Protective Equipment (PPE)	Selected	Comments
Safety Shoes	Y	
Hard Hat	Y	
Safety Glasses	Y	
Fire Resistant Clothing	Y	
Face Shields	Y	
Hearing Protection	Y	
Goggles	Y	
Welding Hood	Y	
Gloves	Y	
Safety Cones/Barricades	Y	
Personal Gas Monitor	Y	
Additional Task Specific PPE	Y	
Other	Y	

Reviewers

Reviewers Name	Position	Date Approved
Hanning, David C (HANN)	Team Leader	03/Oct/2008
Donnelly, Jill M (JILD)	LPS Team Lead	03/Oct/2008
Gilmour, Clive (CGLM)	Contractor	29/Aug/2008

Development Team

Development Team Member Name	Primary Contact	Position
Donnelly, Jill M. (JILD)	Y	LPS Team Lead
Barnes, Allan (LBAF)	N	LPS Global Core Team
Del Castillo, Elaine R. (AEUS)	N	Safety Specialist
Esquivel, Roy D. (RESQ)	N	Emergency Responder
Gibson, Mike E. (MIEG)	N	LPS Global Core Team
Hopkins, Danny W. (HOPK)	N	Emergency Responder
Ikeda, John P. (JIKE)	N	LPS Team Lead
Lucas, Jeffery G. (JLSW)	N	Craftsman/Tradesperson
Maloy, Jules A. (JMLY)	N	LPS Global Core Team
Miller, Rob R. (KRMK)	N	HES Specialist

Moffatt, Claud H. (CMOF)	N	Craftsman/Tradesperson
Morgans, Glyn J. (GLMJ)	N	Safety Specialist
Schley, Sly A. (DVAS)	N	Operator
Taylor, Robert W. (ROTA)	N	Emergency Responder
Ward, Michael A. (WMAW)	N	Safety Specialist

Job Steps

No	Job Steps	Potential Hazard	Critical Actions
1	Pre-Construction review/Pre-job safety review.	1) Misinformation or missing of a critical hazard. 2) All workers involved are not aware of the scope of the work being performed.	1) Review approved written work procedure and/or safety site plan with Supervisor, Lead Operator, Head Operator, First Operator, or Safety Operator. 2) Review hot work permit restrictions with fire-watch.
2	Prepare hot work permit.	1) Inadequate communication of job Scope, hazards, timeframes, and safeguards needed. 2) Time loss due to inadequate equipment availability.	1) Refer to Refinery Instructions – Hot work. Permit must be signed by Issuer / Acceptor (supervisor/delegate, equipment owner/ operator .etc.) Review daily work conditions, including equipment isolation. Review LOTO procedures. Review all conditions on permits with persons performing work. Before hot work can proceed, work location and work environment and permit requirements must be checked by operating personnel, Fire-watch and Fire-Inspector simultaneously (this includes ventilation requirements, if applicable.) Cover and or seal all drains within 50 feet of ignition source. 2) Ensure equipment is adequate such as appropriate lighting, rain covers etc., as applicable.
3	Ensure Fire watch personnel is in place (employee /contractor) and has been properly trained.	1) Fire watch personal not trained for the task and/or not up to date on current procedures. 2) Incorrect reading's of equipment leading to fire or explosion. 3)Incipient Fire	1) Verify fire-watch has been properly trained for the task and all knowledge is current. 2a) Ensure fire watch or person testing is trained in proper use of gas tester. 2b) Ensure fire-watch has knowledge and ability to contact operations. 3) Ensure Fire watch is familiar with proper incipient stage fire fighting techniques and has appropriate fire fighting equipment on site (pressurized water hose or extinguisher Class A, B or C.)
4	Ensure that the gas testing equipment is operating properly and radios are on proper channels.	1) False readings by the testing equipment. 2) Delayed help in case of emergency.	1) Perform flow and or bump test daily, test self (auto) diagnostic weekly, and gas monitor calibration monthly. 2) Test radio and check location.
5	LOTO	1) Improper lockout. 2) Locking out of wrong equipment.	1) Follow all proper LOTO 2) Have operations verify that the right equipment is locked out.

6	Gas test equipment and/or general area	<p>1) Fire or explosion at hot location as atmosphere is enriched with hydrogen or hydrocarbons and LEL% has been reached.</p> <p>2) Release of flammable vapors resulting in fire or explosion during hot-work.</p> <p>3) Other unit / equipment may be a source of combustible material.</p>	<p>1a) Gas test equipment in numerous locations if possible.</p> <p>1b) Gas test all enclosed voids or cavities by making additional sample points. Beware of equipment with internal linings or attached dummy legs as gas could be trapped in pockets behind the lining or within sealed dummy legs.</p> <p>1c) Gas test and monitor 360 degrees around work area, to a radius of 45 feet (15 meters) and at elevations 6 feet (2metres) above and below to allow for stratified atmosphere and different gas densities. Take into account wind direction and conditions. Gas test low spots within areas: ditches, sumps, and drains.</p> <p>1d) Gas test equipment in the area where there is the potential for gas release e.g. pumps seals, pipe flanges, control valve and block valve glands.</p> <p>2a) Inspect equipment for cleanliness as in many gases where surfaces are contaminated with heavy hydrocarbons or scale hydrogen or hydrocarbons are not released until temperature is applied.</p> <p>2b) Cover all sewer and sample point drains to prevent gas release into work area.</p> <p>2c) Do not assume that Utility Systems e.g. water; air and steam have not been contaminated with hydrogen or hydrocarbon.</p> <p>2d) Ensure the required physical isolations or disconnections are in place for example blinds, blanks, plugs and closed block valves are in place to prevent uncontrolled release of hydrogen or hydrocarbons into work area.</p> <p>2e) Ensure good control / communications / interactions with other groups working in surrounding area whose activities may lead to a change in hot work conditions for example uncontrolled release of hydrocarbons when breaking into equipment.</p> <p>3) Check for other sources of fuel (wood, oil-soaked insulation etc.) Wet area down if necessary.</p>
7	Hot work commencement.	<p>1) Fire/Explosion due to improper spark containment.</p> <p>2) Conditions may change during task.</p> <p>3) Burns, welding flash, and metal fume fever due to improper or lack of PPE.</p> <p>4) Lack of or inadequate evacuation plan.</p> <p>5) Fire or explosion in area "post" completion of Hot Work.</p>	<p>1) Ensure appropriate fire blanketing as applicable. If a contract fire-watch is used, then safety or lead operator or shift supervisor must be present during commencement of hot work.</p> <p>2) Frequent gas checks – and consider other possible sources of ignition: eg. vehicles, static, pyrophorics. Consider other fuel (such as painting or solvent degreasing compounds) inadvertently being brought into the area.</p> <p>3) Ensure proper PPE is worn.</p> <p>4) Review contingency and emergency /evacuation plans.</p> <p>5) Fire-watch to remain in area 30 minutes after work has finished.(as per OSHA)</p>
8	Clean up at the end of the job.	<p>1) Potential ignition sources left in units.</p> <p>2) Work area not returned to a clean and safe condition.</p>	<p>1a) Practice proper housekeeping procedures.</p> <p>1b) Remove welding equipment, acetylene bottles, tools, debris etc.</p> <p>2) Remove drain covers, disconnect hose from hydrant, drain hoses and clean up general area.</p>

